GE
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Kilsen KFP-CF Series Installation Manual

P/N 501-415103-1-10 • REV 1.0 • ISS 03MAY09

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Important information

This is the installation manual for the Kilsen KFP-CF series conventional fire control panels. Read these instructions and all related documentation entirely before installing or operating this product.

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Chapter 1
Introduction

Summary

This chapter provides an introduction to your control panel and the available operating modes.

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Product range 2
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Product range

The KFP-CF series includes the models shown below.

Model	Description
KFP-CF2	Two-zone conventional fire alarm control panel
KFP-CF4	Four-zone conventional fire alarm control panel with fire routing
KFP-CF8	Eight-zone conventional fire alarm control panel with fire routing

All models have been designed in accordance with EN 54-2, EN 54-4, BS 5839-1, NBN S21-100, and NEN 2535 standards. For further details, see “Appendix B Product compliance” on page 69.

Product compatibility

For details of compatible products, see the compatibility sheet included with your control panel or consult your local supplier. Compatibility with other products cannot be guaranteed.

Operating modes

Supported operating modes are shown in the table below. The default operating mode is EN 54-2.

Table 1: Operating modes

Operating mode	Region
EN 54-2 (default)	European Union
EN 54-2 Evacuation	European Union (Spain)
EN 54-2 Scandinavia	European Union (Scandinavia)
BS 5839-1	United Kingdom
NBN S21-100	Belgium
NEN 2535	The Netherlands

Chapter 2
Installation

Summary

This chapter explains how to install your control panel, and how to connect zones, fire system devices, and the power supply.

WARNING: This product must be installed and maintained by qualified personnel adhering to the CEN/TS 54-14 standard (or the corresponding national standard) and any other applicable regulations.

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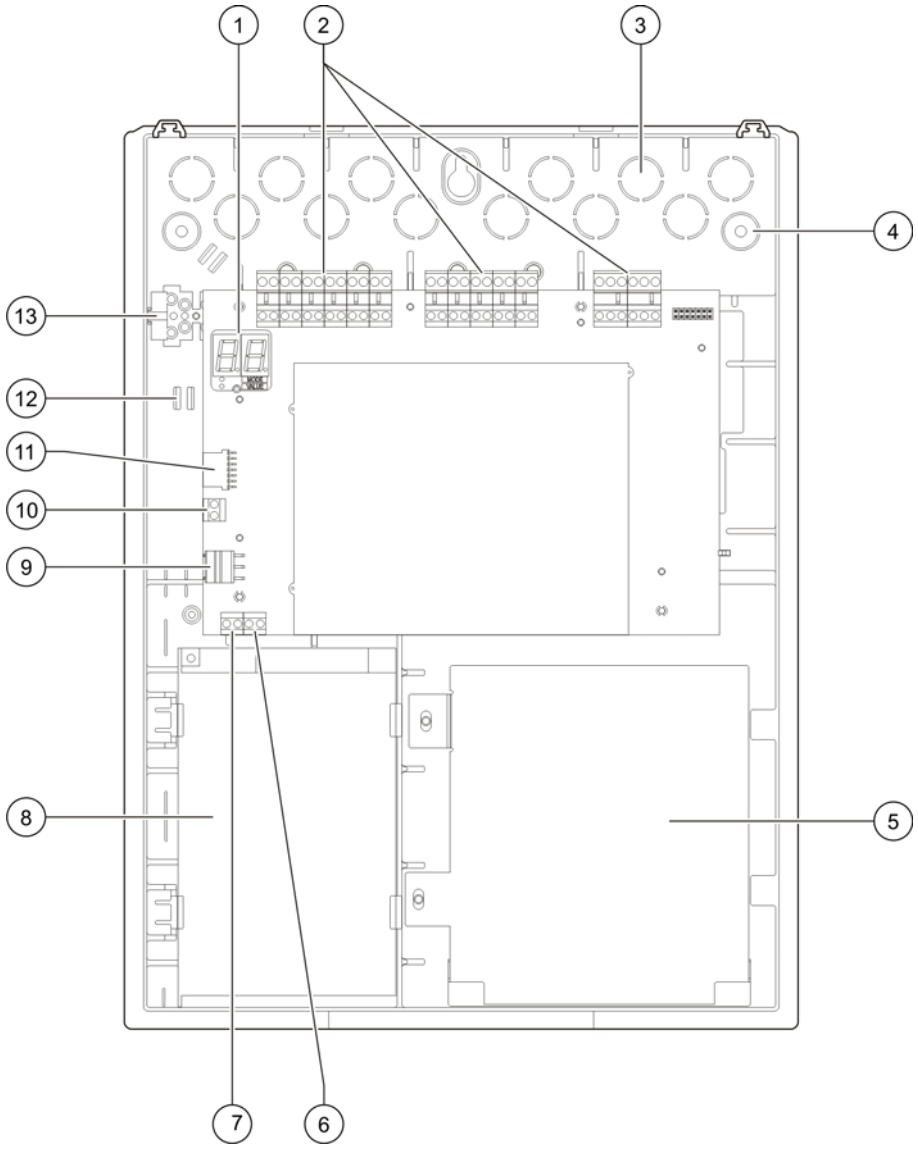
Cabinet layout

Cabinet layout for two- and four-zone control panels

Figure 1: Cabinet layout for two- and four-zone control panels

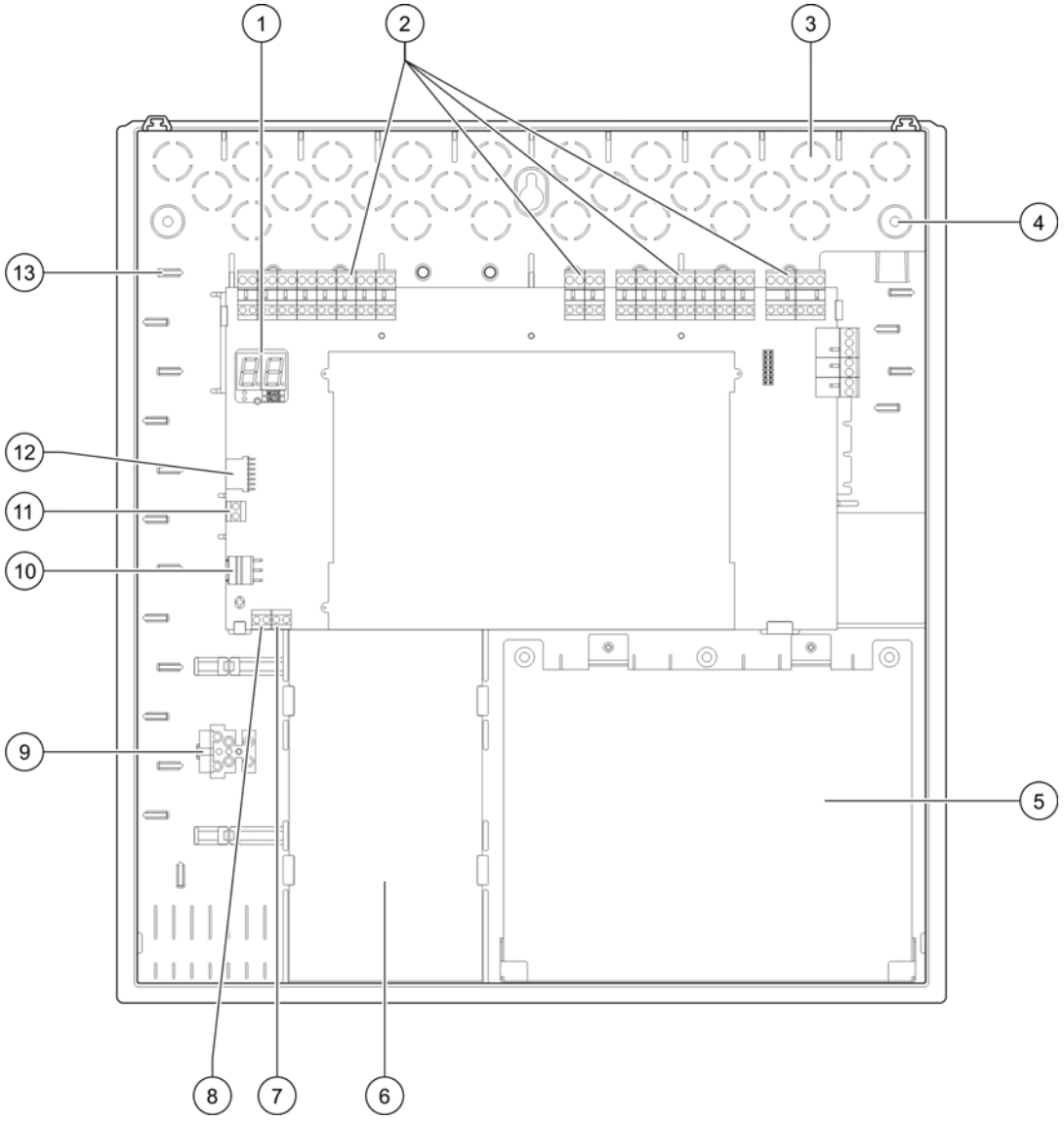


1. Seven-segment display
2. Zone and fire system connectors
3. Cable knockouts
4. Mounting screw knockouts
5. Battery area
6. Key connector
7. Alarm counter connector
8. Power supply unit
9. Power supply connector
10. Battery connector
11. Expansion module connector
12. Cable holder
13. Fuse terminal block

Note: The alarm counter and key connectors are only included on selected regional models.

Cabinet layout for eight-zone control panels

Figure 2: Cabinet layout for eight-zone control panels



1. Seven-segment display
2. Zone and system connectors
3. Cable knockouts
4. Mounting screw knockouts
5. Battery area
6. Power supply unit
7. Key connector
8. Alarm counter connector
9. Fuse terminal block
10. Power supply connector
11. Battery connector
12. Expansion module connector
13. Cable holder

Note: The alarm counter and key connectors are only included on selected regional models.

Cabinet installation

Before you begin

- Remove the front cover
- Remove cable knockouts from the top, bottom, and rear of the cabinet as required

Where to install the cabinet

Make sure the installation location is free from construction dust and debris, and immune to extreme temperature ranges and humidity (see “Chapter 5 Technical specifications” on page 49 for more information on the operating temperature and relative humidity specifications).

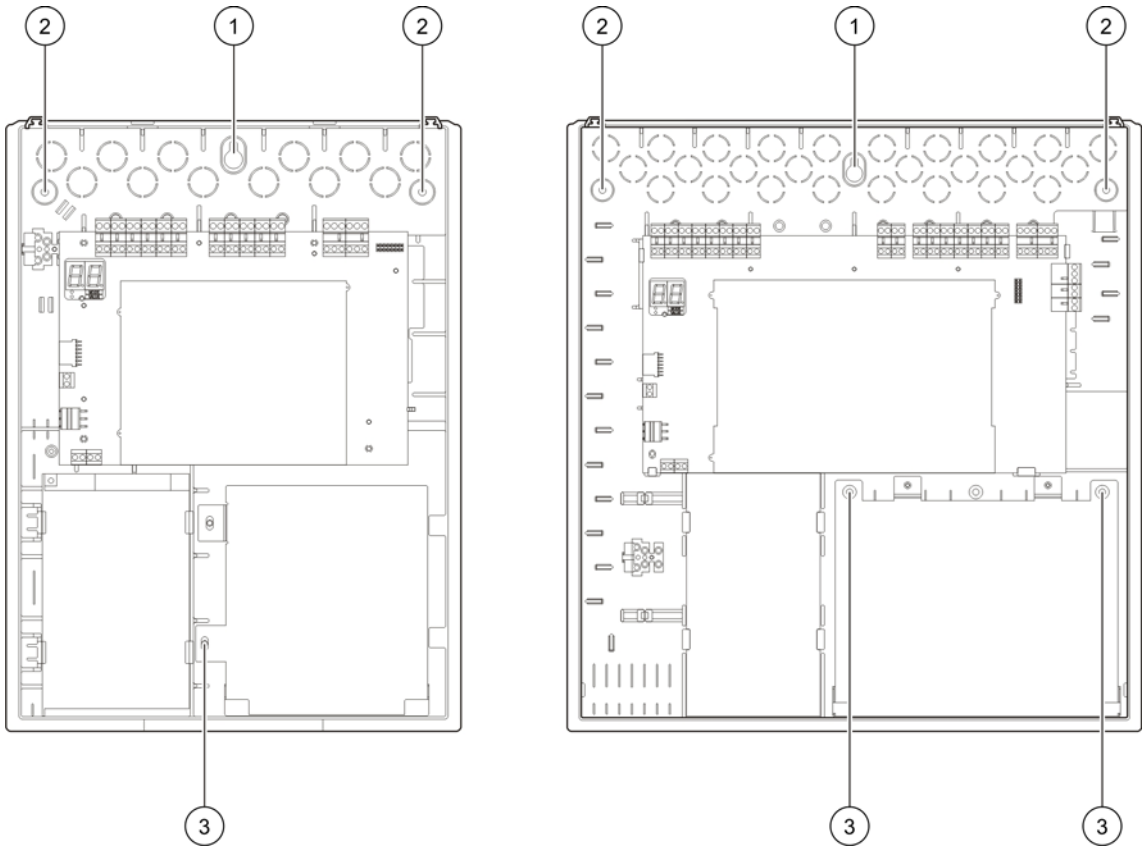
Allow for enough floor and wall space so the panel can be installed and serviced without any obstructions. The cabinet should be mounted so that the user interface is at eye level.

Fixing the cabinet to the wall

The requirements for nylon wall plugs and screws are shown in the following table.

Model	Screws	Wall plugs
Two- and four-zone control panels	4 x M4, 30 mm	4 x Ø 6 mm
Eight-zone control panel	5 x M4, 30 mm	5 x Ø 6 mm

Figure 3: Mounting hole locations



Fix the control panel cabinet to the wall as follows:

1. Mark drill points on the wall using the template provided in the product packaging
2. Drill all required holes and insert a 6 mm wall plug into each.
3. Insert screw (1) half way and hang the cabinet onto this screw.
4. insert screws (2) and tighten.
5. Insert screws (3) and tighten.
6. Tighten screw (1).

Connections

WARNING: Do not make any control panel or system connections while the control panel is connected to the mains power supply.

Cabling requirements

Recommended cable

Recommended cables for your fire system are shown in the table below.

WARNING: Failure to use the recommended cable may impact system performance.

Table 2: Recommended cables

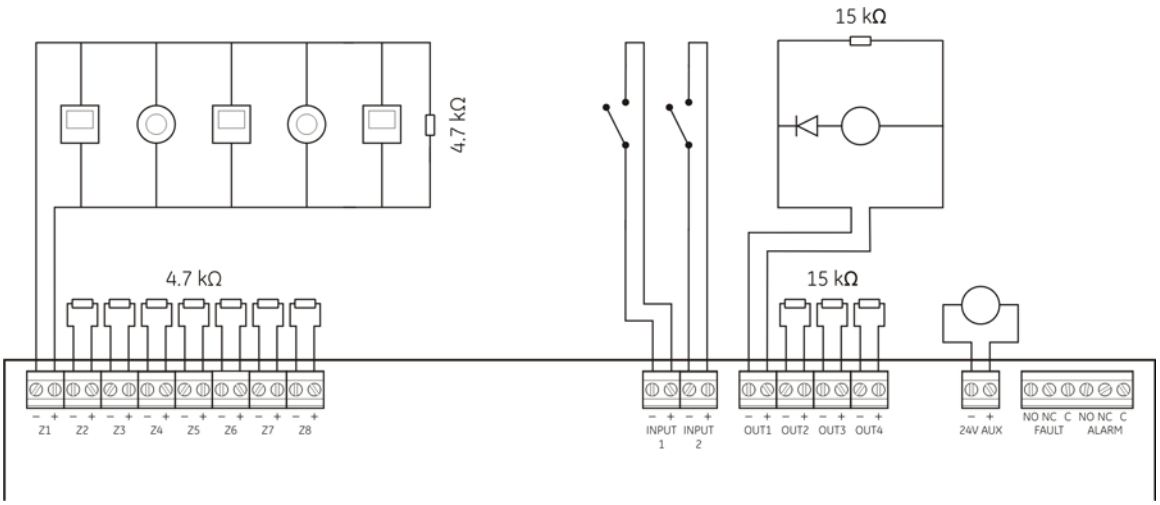
Cable	Cable description	Maximum cable length
Mains cable	3 x 1.5 mm	N/A
Zone circuit cable (mixed zone)	Twisted-pair (max. 40 Ω / 500 nF)	2 km
Zone circuit cable (automatic or manual zones)	Twisted-pair (max. 55 Ω / 500 nF)	2 km

Securing cables

Use 20 mm cable glands to ensure clean and secure connections at the control panel cabinet. All cables should be fed through the cable guides in the cabinet housing to eliminate movement.

Overview of fire system connections

Figure 4: Overview of fire system connections



Connecting zones and zone devices

Connecting zones

Connect zone wires as shown in Figure 4 above. Line resistance is shown in the table below.

Zone type	Line resistance
Mixed (automatic and manual)	Max. 40 Ω
Automatic	Max. 55 Ω
Manual	Max. 55 Ω

Note: The default zone detection settings for each operating mode can be found in Appendix A “Configuration presets” on page 59. To change the zone detection setting, see “Advanced configuration” on page 31.

Terminating zones

Each zone circuit requires a 4.7 kΩ end-of-line resistor for termination. If a zone is not used, the 4.7 kΩ end-of-line resistor must be installed across the unused zone terminals.

Note: For BS 5839-1 the default zone configuration is active end-of-line and an active end-of-line module must be installed instead of an end-of-line resistor. Unused zones must be terminated with an active end-of-line module or configured as passive end-of-line and terminated with a 4.7 kΩ end-of-line resistor as described above.

Connecting detectors

Connect detectors as shown in Figure 4 on page 9. Each zone circuit can support up to 20 detectors.

Connecting manual call points

Connect manual call points in parallel, as shown in Figure 4 on page 9. Each zone circuit can support up to 32 manual call points.

Manual call points must have a resistance installed in series with the normally open (NO) contact to avoid a short-circuit and to allow the control panel to identify the origin of the alarm (automatic or manual).

The resistance required will depend on the zone type as shown below.

Zone type	Manual call point resistance
Mixed	100 Ω per 2 W
Manual	100 Ω to 470 Ω per 2 W

Note: The default zone detection settings for each operating mode can be found in Appendix A “Configuration presets” on page 59. To change the zone detection setting, see “Advanced configuration” on page 31.

Connecting inputs

Input functionality

Each control panel has two inputs, marked INPUT1 and INPUT2. These circuits are connected as normally open and activated when closed.

The function of INPUT1 is defined by the panel operating mode. See Table 3 below.

Table 3: Input functionality for inputs 1 and 2

Operating mode	INPUT1	INPUT2
EN 54-2	Remote reset	Delays off
EN 54-2 Evacuation	Remote reset	Delays off
EN 54-2 Scandinavia	Extended fire routing delay	Delays off
BS 5839-1	Class change	Delays off
NBN S21-100	Remote reset	Delays off
NEN 2535	Fire routing inhibit delay	Delays off

Note: INPUT1 is not used in two-zone control panels operating EN 54-2 Scandinavia mode.

Connecting inputs

Connect input switches to INPUT1 and INPUT2, as shown in Figure 4 on page 9. The circuit should have a maximum resistance of 100 Ω (including any cable resistance).

Connecting outputs

Output functionality

Control panels have the following outputs:

- Two-zone control panels have two outputs, marked OUT1 and OUT2.
- Four- and eight-zone control panels have four outputs, marked OUT1, OUT2, OUT3, and OUT4.

The function of each output is defined by the panel operating mode. See Table 4 below. All outputs are overload protected.

Table 4: Output functionality for outputs 1 to 4

Operating mode	OUT1	OUT2	OUT3	OUT4
EN 54-2	Sounders	Sounders	Sounders	Fire routing
EN 54-2 Evacuation	Sounders	Sounders	Sounders	Sounders
EN 54-2 Scandinavia	Sounders	Sounders	Sounders	Fire routing
BS 5839-1	Sounders	Sounders	Sounders	Sounders
NBN S21-100	Evacuation sounders	Evacuation sounders	Warning sounders	Warning sounders
NEN 2535	Sounders	Sounders	Fire routing (automatic)	Fire routing (manual)

Output termination

All outputs require a 15 kΩ end-of-line resistor for termination. If an output is not used, the 15 kΩ end-of-line resistor must be installed across the unused output terminals.

Output polarity

All outputs are polarity sensitive. Observe polarity or install a 1N4007 diode to avoid inverted activation issues.

Connecting the sounders

Depending on the operating mode, up to four sounder circuits can be connected. See Table 4 above.

The sounder outputs are powered and supply –15 VDC in standby and +24 VDC (nominal value) in alarm.

The maximum current consumption for each sounder circuit is shown below.

Two- and four-zone control panels	250 mA
Eight-zone control panel	500 mA

The sounder outputs are supervised for short circuit and open circuit.

Connecting fire routing equipment

Connect fire routing equipment as shown in the table below.

Operating mode	Fire routing (automatic)	Fire routing (manual)
EN 54-2 EN 54-2 Scandinavia	OUT4	OUT4
NEN 2535	OUT3	OUT4

The fire routing outputs are supervised for short circuit and open circuit.

Note: Fire routing in EN 54-2 operating modes makes no distinction between automatic and manual alarms.

Connecting the mains power supply

WARNING: Connect the mains power supply before connecting the batteries.

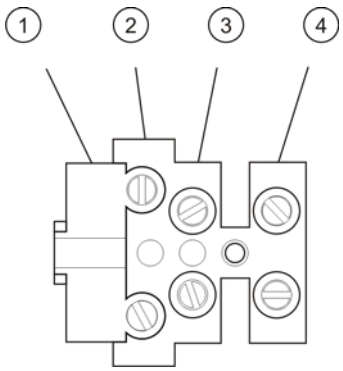
The control panel can be operated at 110 VAC / 60 Hz or 240 VAC / 50 Hz (+10%/–15%).

Mains power should be sourced directly from a separate circuit breaker in the building electrical supply distribution board. This circuit should be clearly marked, have a bipolar disconnect device, and only be used for fire detection equipment.

Feed all mains cables through the appropriate cable knockouts and connect them to the fuse terminal block as shown in Figure 5 below.

Keep mains cables separate from other cabling to avoid potential short circuits and interference. Always secure mains cables to the cabinet to prevent movement.

Figure 5: Connecting the mains power supply



1. Mains fuse
2. Live
3. Earth
4. Neutral

For fuse specifications, see Chapter 5 “Technical specifications” on page 49.

Selecting 115 or 230 VAC operation

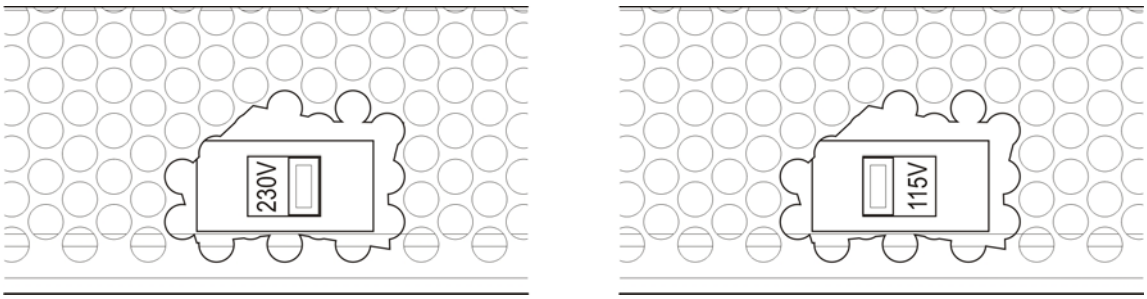
WARNING: An incorrect power setting can destroy the power supply.

Power switching for 115 or 230 VAC operation is automatic for two- and four-zone control panels and no configuration is required.

For eight-zone control panels, the default power setting is 230 VAC. For 115 VAC operation, use a small screwdriver to change the power setting switch, located on the side of the power supply unit, as shown in Figure 6 below.

WARNING: Always disconnect the control panel from the mains supply before changing the power setting.

Figure 6: Selecting 115 or 230 VAC operation



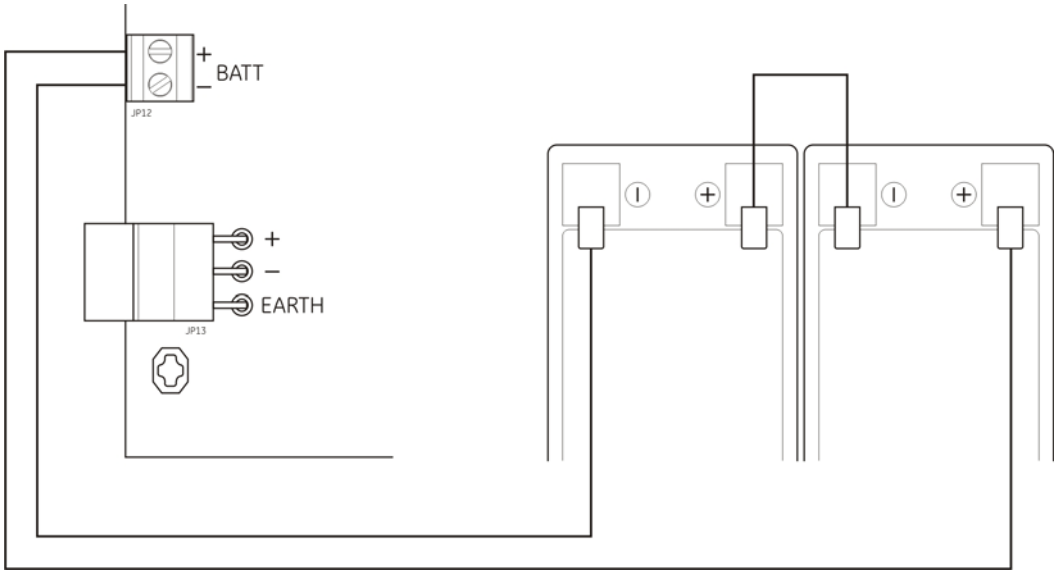
Connecting the batteries

The control panel requires two 12 V, 7.2 or 12 Ah rechargeable, sealed, lead-acid batteries (see “Compatible batteries” on page 47).

Batteries must be installed in series, at the base of the control panel cabinet. Use the battery lead and bridge provided and connect batteries to the BATT connector on the control panel PCB, as shown below. Polarity must be observed.

Note: If the control panel indicates a Supply Fault, then the batteries may need to be replaced. See “Battery maintenance” on page 47.

Figure 7: Connecting the batteries



Caution: No other equipment may be connected to the BATT connector.

Other connections

Connecting auxiliary equipment

Connect the auxiliary equipment to 24 AUX as shown in Figure 4 on page 9. The 24 VDC auxiliary output is supervised for short circuit and voltage output.

Connecting alarm and fault relays

Connect the alarm and fault equipment to the ALARM and FAULT relays.

Each potential-free relay output will be activated in an alarm or fault situation respectively. The fault relay output is powered when there is no fault.

The maximum contact rating for each relay circuit is 2 A / 30 VDC.

Chapter 3
Configuration and commissioning

Summary

This chapter includes information on how to configure and commission the control panel. Configuration is divided in basic configuration and advanced configuration options.

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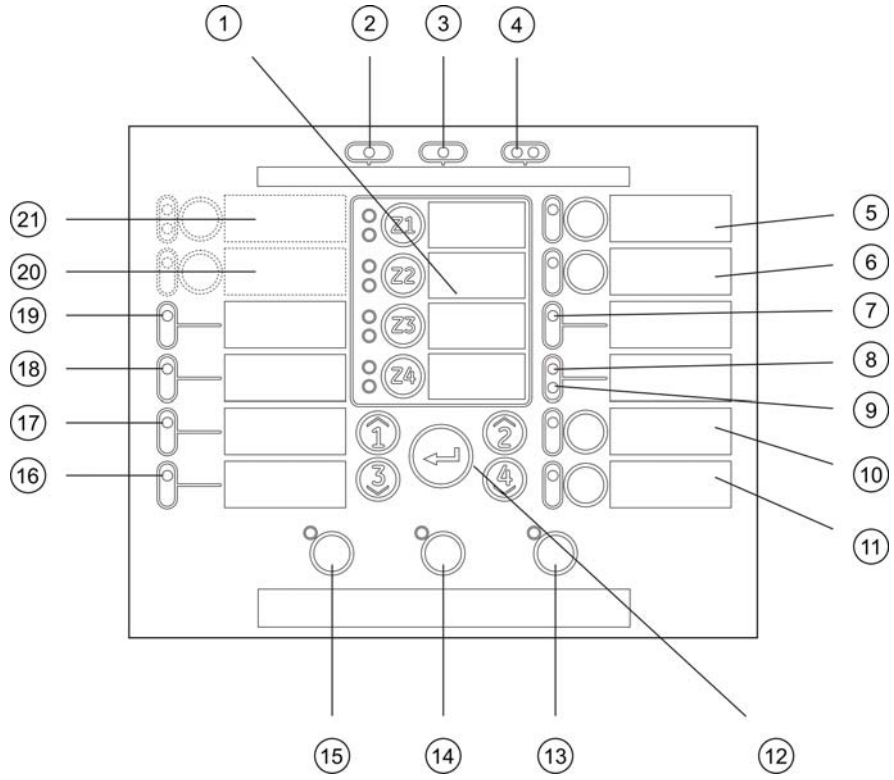
The user interface

User interface for two- and four-zone control panels

Figure 8: User interface for two- and four-zone control panels

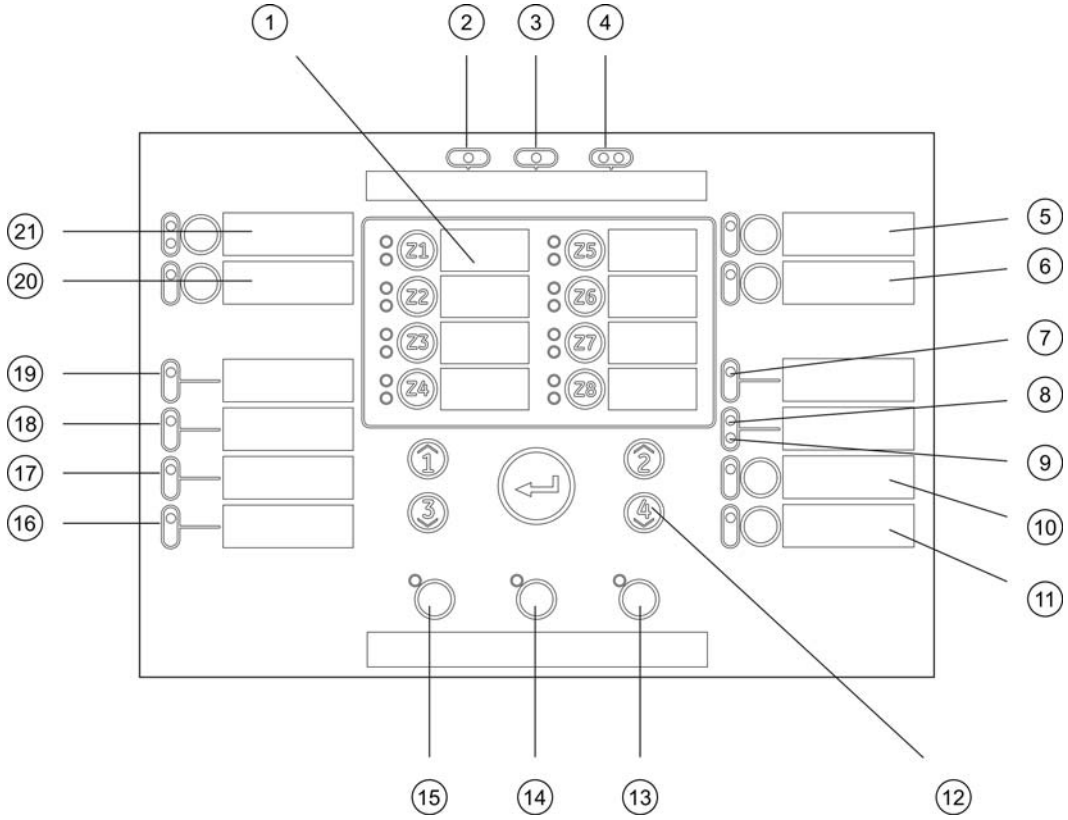


1. Zone buttons and LEDs (Z1, Z2, etc.)
2. Supply LED
3. General Fault LED
4. General Fire Alarm LEDs
5. Sounder Fault/Disable/Test button and LED
6. Sounder Delay button and LED
7. Network Fault LED
8. Service Detector LED
9. Expansion I/O Fault/Disabled LED
10. General Disable button and LED
11. General Test button and LED
12. Configuration controls
13. Reset button and LED
14. Panel Silence button and LED
15. Sounder Start/Stop button and LED
16. System Fault LED
17. Out of Service LED
18. Earth Fault LED
19. Supply Fault LED
20. Fire Routing Delay button and LED
21. Fire Routing Start and Fault/Disable/Test button and LEDs

Note: Two-zone control panels do not include fire routing.

User interface for eight-zone control panels

Figure 9: User interface for eight-zone control panels



1. Zone buttons and LEDs (Z1, Z2, etc.)
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16. System Fault LED
17. Out of Service LED
18. Earth Fault LED
19. Supply Fault LED
20. Fire Routing Delay button and LED
21. Fire Routing Start and Fault/Disable/Test button and LEDs

Access levels and passwords

In accordance with EN 54-2, operation and configuration of this product is restricted by access level.

Configuration tasks described in this chapter can only be performed at access level 3 basic or advanced. Passwords and indications for each access level are described in “Access level passwords and indications” on page 19.

Access level 1

Access level 1 is the default access level and allows basic operational access only, such as responding to a fire alarm or fault warning at the control panel.

Access level 2

Access level 2 allows advanced operational access. It is reserved for authorized users who have been trained to operate the control panel.

Access level 3 basic

Access level 3 basic allows control panel configuration with rapid configuration options for the most common installation requirements. It is reserved for the installation contractors responsible for the fire system installation and configuration, and for authorized maintenance contractors.

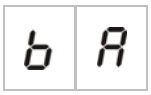
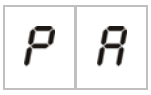
Access level 3 advanced

Access level 3 advanced allows control panel configuration with custom configuration options for all installation requirements. It is reserved for the installation contractors responsible for the fire system installation and configuration, and for authorized maintenance contractors.

Access level passwords and indications

The default access level passwords and the corresponding LED and seven-segment display indications are shown in the table below. The seven-segment display is only visible when the control panel cover is removed. See Figure 1 on page 4 and Figure 2 on page 5.

Table 5: Access level passwords and indications

Access level	Password	LED	Default display	Custom display
1	None	None	None	None
2	2222	The Reset LED is steady	None	None
3 basic	3333	The Reset LED is flashing		
3 advanced	4444	The Reset LED is flashing		

Note: The seven-segment display will default to the custom display (operating mode menu) when entering basic or advanced configuration if custom zone delay, zone configuration, or zone type settings have been applied via the advanced configuration menu.

Configuration overview

To facilitate rapid configuration of the most common tasks, configuration is divided into basic and advanced configuration levels.

For basic configuration options, see “Basic configuration” on page 24. For advanced configuration options see “Advanced configuration” on page 31.

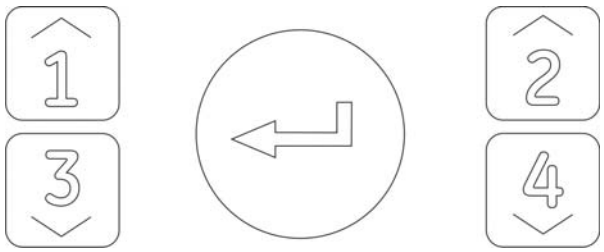
Configuration controls

The control panel is configured using the front panel configuration controls and the seven-segment display.

The configuration controls

The configuration controls are located on the control panel interface.

Figure 10: Front panel configuration controls



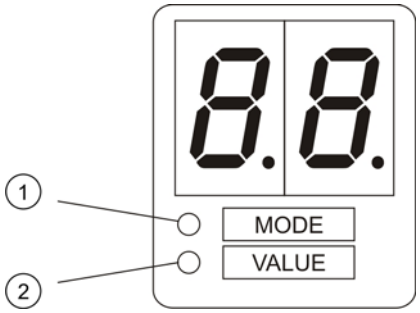
Button	Function
1	Scroll to the next configuration menu on the seven-segment display.
2	Scroll to the next configuration value for the active menu on the seven-segment display.
3	Scroll to the previous configuration menu on the seven-segment display.
4	Scroll to the previous configuration value for the active menu on the seven-segment display.
Enter	Confirm a menu selection or a value selection entry.

Note: The configuration controls are also used to enter the access level password.

The seven-segment display

The seven-segment display is only visible when the control panel cover is removed (see Figure 1 on page 4 and Figure 2 on page 5).

Figure 11: The seven-segment display



1. Mode LED
2. Value LED

LED	Indications
Mode	Select a configuration menu using buttons 1 and 3 when this LED is steady, or Select a configuration submenu using buttons 1 and 3 when this LED is flashing.
Value	Select a configuration value using buttons 2 and 4 when this LED is steady

Common configuration tasks

To enter configuration mode:

1. Remove the control panel cover so that the seven-segment display is visible.
2. Enter a valid access level 3 password (3333 for basic configuration or 4444 for advanced configuration).
3. Press Enter.

When first entering configuration mode, the Mode LED on the seven-segment display is steady. For other indications see “Access levels and passwords” on page 18.

To select a menu:

1. Select the required menu using the menu selection buttons (1 and 3).
2. Press Enter.

When a configuration menu has been selected, the Value LED on the seven-segment display is steady.

To select a value:

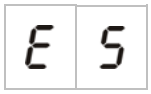
1. Select the required value using the value selection buttons (2 and 4).
2. Press Enter.

To exit configuration mode and save your changes:

1. Press Panel Silence.
2. Press Enter.

— or —

1. Set the display as shown below, and then press Enter.



The Panel Silence LED flashes to confirm that a configuration change has been applied.

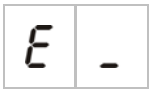
Note: Make all required configuration changes before exiting configuration mode and saving your changes.

To exit configuration mode without saving your changes:

1. Press Reset

— or —

1. Set the display as shown below, and then press Enter.



The control panel will exit configuration mode after five minutes if no button is pressed.

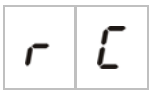
Visual indications for current value and selected value

Current and selected values are indicated as follows.

Status	Indication
Current value	Both decimal points on the display are steady
New selected value	Both decimal points on the display are flashing
Other value	Both decimal points on the display are off

To restore the previous configuration:

1. Set the display as shown below, and then press Enter.



To restore the factory configuration:

1. Set the display as shown below, and then press Enter.

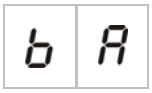
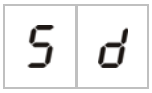
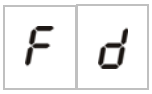
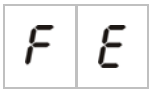
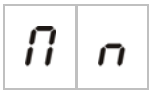
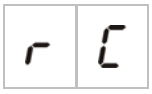
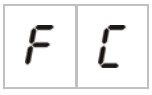
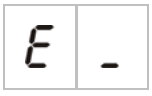
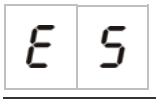
Basic configuration

The default password for basic configuration is 3333. After entering the password, the first displayed menu will be Basic default configuration (indicating level 3 basic access) or Operating mode. For more information see “Access level passwords and indications” on page 19.

The basic configuration menu

Configuration options for this menu are shown in the table below. More information for each option is included in the related topic.

Table 6: The basic configuration menu

Display	Menu	Values	Operating mode
	Basic default configuration	See topic	All
	Operating mode	EN 54-2 EN 54-2 Evacuation EN 54-2 Scandinavia BS 5839-1 NBN S21-100 NEN 2535 Custom	All
	Sounder delay	00 to 10 minutes	EN 54-2 EN 54-2 Evacuation EN 54-2 Scandinavia NBN S21-100
	Fire routing delay	00 to 10 minutes	EN 54-2 EN 54-2 Scandinavia NBN S21-100 NEN 2535
	Extended fire routing delay	00 to 10 minutes	EN 54-2 Scandinavia NEN 2535
	Add an expansion module	00 to 04 modules	All
	Restore previous configuration	N/A	All
	Restore factory configuration	N/A	All
	Exit without saving	N/A	All
	Exit and save	N/A	All

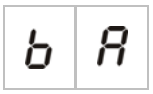
Note: Additional menu options are available if one or more expansion modules are installed. See “Expansion module configuration” on page 39.

Basic default configuration

Use this menu to select common operating mode configuration presets. The default setting is 01 (EN 54-2, passive end-of-line).

To select an operating mode configuration preset:

1. Set the display as shown below, and then press Enter.



2. Select a value using the value selection buttons (2 and 4).

   See Table 7 below for descriptions of the presets.

3. Press Enter.
4. Save your changes.

A selected list of operating mode configuration presets is shown below. For a detailed list of all available configuration presets and characteristics, see Appendix A “Configuration presets” on page 59.

Table 7: Common operating mode configuration presets

Display	Operating mode	Zone end-of-line	Zone type
01 (default)	EN 54-2	Passive	Mixed
05	EN 54-2 Evacuation	Passive	Mixed
07	EN 54-2 Scandinavia	Passive	Mixed
11	BS 5839-1	Active	Mixed
21	NBN S21-100	Passive	Automatic
31	NEN 2535	Passive	Odd zones: Automatic Even zones: Manual

The operating mode is indicated by the first digit in the display and the configuration type by the second digit. If a custom configuration has been applied (via the advanced configuration menu), then the second digit is a zero, as shown below.

Display	Configuration	Display	Configuration
01	EN 54-2 preset configuration	00	EN 54-2 custom configuration
11	BS 5839-1 preset configuration	10	BS 5839-1 custom configuration
21	NBN S21-100 preset configuration	20	NBN S21-100 custom configuration
31	NEN 2535 preset configuration	30	NEN 2535 custom configuration

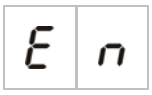
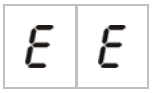
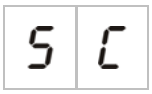
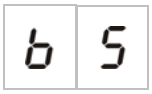
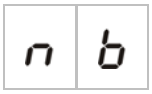
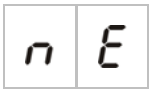
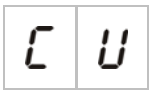
Operating mode

Use this read-only menu to view the operating mode of the control panel.

To view the operating mode:

1. Set the display as shown below, and then press Enter.

Display indications for each operating mode are shown below.

Display	Operating mode
	EN 54-2
	EN 54-2 Evacuation
	EN 54-2 Scandinavia
	BS 5839-1
	NBN S21-100
	NEN 2535
	Custom

Custom operating mode

A custom operating mode will be indicated if any of the following zone configuration settings are changed from the operating mode preset values:

- Zone delay
- Zone configuration
- Zone type

Sounder delay

Use this menu to configure a sounder delay of up to 10 minutes in operating modes where the feature is available.

To configure a delay:

1. Set the display as shown below, and then press Enter.

   The Sounder Delay LED flashes quickly to indicate that the sounder delay configuration menu is active.
2. Select a delay value from 1 to 10 minutes using the value selection buttons (2 and 4).
3. Press Enter.
4. Save your changes.

Once configured the delay must be enabled at access level 2.

To enable a configured delay:

1. Exit access level 3.
2. Enter the access level 2 password.
3. Press the Sounder Delay button.

A steady Sounder Delay LED indicates that the delay is enabled.

Default delays

Default sounder delays for each operating mode are shown below.

Operating mode	Default delay in minutes
NBN S21-100	01
EN 54-2 EN 54-2 Evacuation EN 54-2 Scandinavia BS 5839-1	00
NEN 2535	This feature is not available in this operating mode.

Delay application logic

Depending on your fire alarm system configuration and the alarm activation device, a configured delay may be overridden.

Delays will only be applied when:

- The configured delay has been enabled.
- The device reporting the fire alarm is a detector installed in a mixed or automatic zone, OR a detector or manual call point installed in an automatic zone.

- The zone delay configuration is set to allow delays in the zone reporting the fire alarm. (This is the default configuration.)

If any of the above are not true, then the control panel overrides the configured delay and activates the sounders immediately.

Fire routing delay

Use this menu to configure a fire routing delay of up to 10 minutes in operating modes where the feature is available.

To configure a delay:

1. Set the display as shown below, and then press Enter.

   The Fire Routing Delay LED flashes quickly to indicate that the fire routing delay configuration menu is active.
2. Select a delay value from 1 to 10 minutes using the value selection buttons (2 and 4).
3. Press Enter.
4. Save your changes.

Once configured the delay must be enabled at access level 2.

To enable a configured delay:

1. Exit access level 3.
2. Enter the access level 2 password.
3. Press the Fire Routing Delay button.

A steady Fire Routing Delay LED indicates that the delay is enabled.

Default delays

The default fire routing delay for each operating mode is shown below.

Operating mode	Default delay in minutes
EN 54-2 Scandinavia	01
NEN 2535	01
EN 54-2	00
EN 54-2 Evacuation BS 5839-1 NBN S21-100	This feature is not available in these operating modes.

Delay application logic

Depending on your fire alarm system configuration and the alarm activation device, a configured delay may be overridden.

Delays will only be applied when:

- The configured delay has been enabled.
- The device reporting the fire alarm is a detector installed in a mixed or automatic zone OR a detector or manual call point installed in an automatic zone.
- The zone delay configuration is set to allow delays in the zone reporting the fire alarm. (This is the default configuration.)

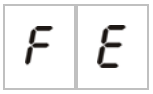
If any of the above are not true, then the control panel overrides the configured delay and activates the fire routing immediately.

Extended fire routing delay

Use this menu to configure an extended fire routing delay of up to 10 minutes in operating modes where the feature is available.

To configure an extended delay:

1. Set the display as shown below, and then press Enter.

   The Fire Routing Delay LED flashes quickly to indicate that the fire routing delay configuration menu is active.

4. Select a delay value from 1 to 10 minutes using the value selection buttons (2 and 4).

   This value must be greater than the configured fire routing delay.

5. Press Enter.
6. Save your changes.

Once configured the delay is enabled at the same time as the standard fire routing delay.

A steady Fire Routing Delay LED indicates that the all configured fire routing delays are enabled.

Default delays

The default extended fire routing delay for each operating mode is shown below.

Operating mode	Default delay in minutes
EN 54-2 Scandinavia	03
NEN 2535	03
EN 54-2 EN 54-2 Evacuation BS 5839-1 NBN S21-100	This feature is not available in these operating modes.

Delay logic

Fire routing and extended fire routing delays elapse concurrently when a fire alarm event is reported.

In NEN 2535 operating mode, the extended fire routing delay becomes the active delay when sounders are stopped (by pressing the Sounder Start/Stop button) and remain stopped when the standard fire routing delay time has elapsed.

In EN 54-2 Scandinavia operating mode, the extended fire routing delay becomes the active delay when an extended fire routing delay switch (connected to INPUT1) is activated while the standard fire routing delay elapses.

Extended delay application logic

Depending on your fire alarm system configuration and the alarm activation device, a configured delay may be overridden.

Extended fire routing delays will only be applied when:

- Both fire routing and extended fire routing delays are configured and enabled.
- The operating mode requirements for the extended delay activation are true (see the previous topic for differences in NEN 2535 and EN 54-2 logic).
- The zone delay configuration is set to allow delays in the zone reporting the fire alarm. (This is the default configuration.)

Add an expansion module

For information on how to add an expansion module to the fire system and how to configure the module, see “Expansion module configuration” on page 39.

Advanced configuration

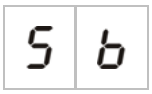
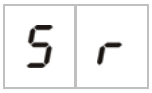
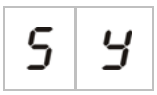
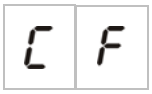
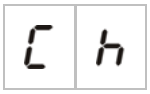
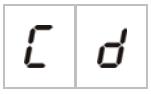
The default password for advanced configuration is 4444. After entering the password, the first displayed menu is Advanced default configuration (indicating level 3 advanced access) or Operating mode. For more information see “Access level passwords and indications” on page 19.

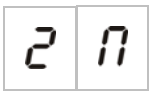
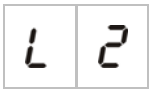
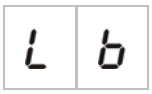
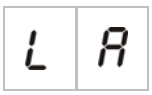
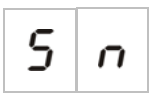
The advanced configuration menu

Configuration options for this menu are shown in the table below. More information for each option is included in the related topic.

Note: All configurable options included in “Basic configuration” on page 24 are also available from the advanced configuration menu.

Table 8: The advanced configuration menu

Display	Menu	Values	Operating mode
	Advanced default configuration	Configuration presets, as defined in “Basic default configuration” on page 25	All
	Sounder operation during a zone test	ON/OFF	All
	Sounder re-sound	ON/OFF	All
	Sounder synchronization	ON/OFF	All
	Software version	Read only	All
	Configuration version	Read only	All
	Configuration time stamp	Read only	All
	Configuration date stamp	Read only	All
	Zone configuration	Passive EOL Active EOL Unlatched Passive EOL with CleanMe Active EOL with CleanMe	All
	Zone delay	ON/OFF	All

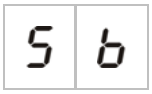
Display	Menu	Values	Operating mode
	Zone type	Mixed Automatic Manual	All
	Access level 2 password	0 to 4444	All
	Access level 3 basic password	0 to 4444	All
	Access level 3 advanced password	0 to 4444	All
	Control panel PCB serial number	Read only	All
	Auxiliary 24 V reset	ON/OFF	All

Sounder operation during a zone test

Use this menu to configure the sounder operation during a zone test. The default setting for all operating modes is ON.

To configure the sounder operation during a zone test:

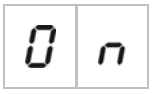
1. Set the display as shown below, and then press Enter.

   The Sounders Start/Stop LED flashes quickly to indicate that the sounder operation during a zone test configuration menu is active.

7. Select a value using the value selection buttons (2 and 4).
8. Press Enter.
9. Save your changes.

The available settings for this feature are shown below.

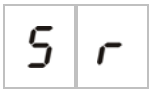
Display	Description
	The internal buzzer and sounders sound for three seconds when an alarm is activated in a zone test.
	The internal buzzer and sounders do not sound when an alarm is activated in a zone test.

Sounder re-sound

Use this menu to configure the sounder re-sound, on or off. This determines sounder operation in a fire alarm event when sounders have been silenced by pressing the Sounder Start/Stop button and a new alarm event is reported. The default setting is ON.

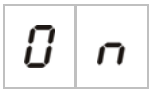
To configure the sounder re-sound:

1. Set the display as shown below, and then press Enter.

   The Sounders Start/Stop LED flashes quickly to indicate that the sounder re-sound configuration menu is active.
2. Select a value using the value selection buttons (2 and 4).
3. Press Enter.
4. Save your changes.

The available settings for this feature are shown below.

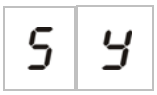
Display	Description
	The sounders re-sound if a new fire alarm event is reported.
	The sounders do not re-sound if a new fire alarm event is reported.

Sounder synchronization

Use this menu to configure the sounder synchronization, on or off. This allows the control panel to synchronize the activation of all sounders. The default setting is on.

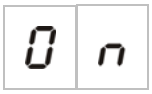
To configure the synchronization:

1. Set the display as shown below, and then press Enter.

   The Sounders Start/Stop LED flashes quickly to indicate that the sounder synchronization configuration menu is active.
2. Select a value using the value selection buttons (2 and 4).
3. Press Enter.
4. Save your changes.

The available settings for this feature are shown below.

Display	Description
	The sounders are synchronized.
	The sounders are not synchronized.

Zone configuration

Use this menu to configure zone settings for each zone in your fire alarm system. The default setting for each operating mode is included in Appendix A “Configuration presets” on page 59.

To configure the zone:

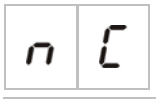
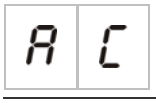
1. Set the display as shown below, and then press Enter.

2. Select the zone (for example, zone 1), and then press Enter.

   The Zone fault/test/disable LED flashes quickly to indicate that the corresponding zone configuration menu is active.

3. Select a value using the value selection buttons (2 and 4).
4. Press Enter.
5. Save your changes.

The available settings for this feature are shown below.

Display	Description
	Passive end of line
	Active end of line
	Unlatched (only available in BS 5839-1 mode)
	Passive end of line with CleanMe
	Active end of line with CleanMe

Zone delay

Use this menu to configure zone delays, on or off, for each zone in your fire alarm system. The default setting is ON.

To configure the zone delay:

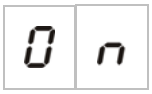
1. Set the display as shown below, and then press Enter.

2. Select the zone (for example, zone 1), and then press Enter.

   The Zone alarm LED flashes quickly to indicate that the corresponding zone configuration menu is active.

3. Select a value using the value selection buttons (2 and 4).
4. Press Enter.
5. Save your changes.

The available settings for this feature are shown below.

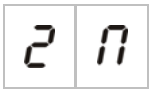
Display	Description
	Configured delays are allowed in the corresponding zone.
	Configured delays are not allowed in the corresponding zone

Zone type

Use this menu to configure the zone type for each zone in your fire alarm system. The default setting for each operating mode is included in Appendix A “Configuration presets” on page 59.

To configure the zone type:

1. Set the display as shown below, and then press Enter.

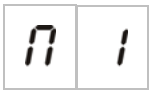
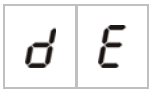
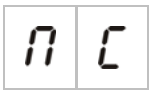
   

2. Select the zone (for example, zone 1), and then press Enter.

   The Zone Fault/Test/Disable LED flashes quickly to indicate that the corresponding zone configuration menu is active.

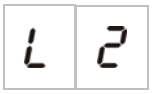
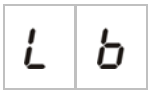
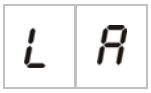
3. Select a value using the value selection buttons (2 and 4).
4. Press Enter.
5. Save your changes.

The available settings for this feature are shown below.

Display	Description
	Mixed zone. The control panel automatically distinguishes between an automatic alarm (generated by a detector) and a manual alarm (generated by a manual call point fitted with a 100 Ω resistor).
	Automatic zone. All fire alarms are treated as reported by a detector, even if the fire alarm is reported by a manual call point in the zone.
	Manual zone. All fire alarms are treated as reported by a manual call point, even if the fire alarm is reported by a detector in the zone.

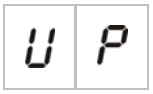
Changing access level passwords

Use the corresponding menu option (shown below) to change the default access level passwords.

	Access level 2 password
	Access level 3 basic password
	Access level 3 advanced password

To change the first two digits of an access level password:

1. Set the display for the desired access level password, and then press Enter.
2. Set the display as shown below, and then press Enter.

   
3. Select a value using the value selection buttons (2 and 4).
4. Press Enter.
5. Save your changes.

To change the last two digits of an access level password:

1. Set the display for the desired access level password, and then press Enter.
2. Set the display as shown below, and then press Enter.

3. Select a value using the value selection buttons (2 and 4).
4. Press Enter.
5. Save your changes.

Auxiliary 24 V reset

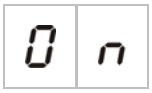
Use this menu to configure the auxiliary 24 V reset setting, on or off. The default setting is OFF.

To configure the zone delay:

1. Set the display as shown below, and then press Enter.

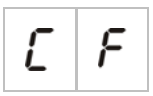
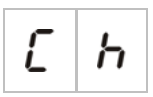
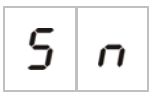
2. Select a value using the value selection buttons (2 and 4).
3. Press Enter.
4. Save your changes.

The available settings for this feature are shown below.

Display	Description
	Resetting the control panel resets the AUX 24V output.
	Resetting the control panel does not reset the AUX 24V output.

Configuration, software, and PCB identification

Use the corresponding menu option (shown below) to see the control panel configuration version and time stamp, software version, and PCB serial number. These details may be required for troubleshooting and technical support.

	Software version
	Configuration version
	Configuration time stamp
	Configuration date stamp
	Control panel PCB serial number

Expansion module configuration

Add an expansion module

Use this menu, available from the basic or advanced configuration menus, to configure the number of installed expansion modules. The default value is 00.

To add an expansion module:

1. Set the display as shown below, and then press Enter.

   The Expansion I/O Fault/Disabled LED flashes quickly to indicate that the module configuration menu is active.
2. Select a value using the value selection buttons (2 and 4).
3. Press Enter.
4. Save your changes.

The maximum number of expansion modules that can be installed is shown below.

Two- and four-zone control panels	Up to two expansion modules
Eight-zone control panel	Up to four expansion modules

Expansion module configuration

Expansion module labels

For configuration purposes expansion modules are labeled A and B (for two- and four-zone control panels) or A, B, C, and D (for eight-zone control panels).

The label for a given module is defined by its position (left to right) in the control panel cabinet,. The first expansion module installed is module A, the second B, etc.

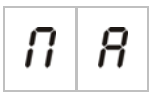
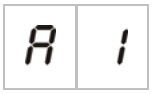
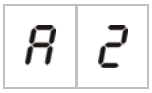
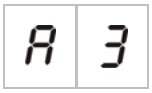
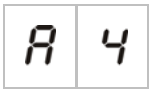
See your expansion module installation sheet for installation instructions.

Expansion module function and delay configuration

Once an expansion module is installed and added to the control panel configuration, the following additional configuration options appear on the basic and advanced configuration menus.

Note: These configuration options are repeated for each of the installed expansion modules (A, B, C, and D).

Table 9: Expansion module A configuration options

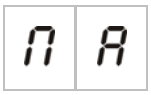
Display	Description	Value
	Module A function	00 to 92
	Module A output 1 delay	00 to 10 minutes
	Module A output 2 delay	00 to 10 minutes
	Module A output 3 delay	00 to 10 minutes
	Module A output 4 delay	00 to 10 minutes

Expansion module function

Use this menu to configure the expansion module function. The default value is 00. For available presets, see Appendix A “Configuration presets” on page 59.

To configure the expansion module function:

1. Set the display as shown below, and then press Enter.

   The Expansion I/O Fault/Disabled LED on the control panel interface and the ON LED on the expansion module flashes quickly to indicate that the module function configuration menu is active.
2. Select a value from 00 to 92 using the value selection buttons (2 and 4).

   See Appendix A “Configuration presets” on page 59.
3. Press Enter.
4. Save your changes.

Expansion module output delay

Use this menu to configure an expansion module output delay of up to 10 minutes, where the feature is available.

To configure an expansion module output delay:

1. For output 1 on expansion module A, set the display as shown below, and then press Enter.

   The Expansion I/O Fault/Disabled LED on the control panel interface and the Activated LED on the expansion module flashes quickly to indicate that the module delay menu is active.
2. Select a value from 00 to 10 using the value selection buttons (2 and 4).
3. Press Enter.
4. Repeat steps 1 to 3 as required for each output (1 to 4) on each installed module (A, B, C, and D) where a delay is required.
5. Save your changes.

Commissioning

Before commissioning the control panel

Before commissioning the control panel, check the following:

- That the control panel has been correctly installed
- That the mains power is 110 VAC or 240 VAC, is connected correctly, and complies with all requirements described in “Connecting the mains power supply” on page 12
- That there are no short or open circuits in any of the zone circuits
- That all zones have the correct end-of-line termination, as described in “Terminating zones” on page 9
- That all manual call points have the correct resistance for alarm identification, as described in “Connecting manual call points” on page 10
- That polarity is observed for all sounder circuits and that all end-of-line resistors are installed, as described in “Connecting the sounders” on page 11
- That any optional equipment installed (fire routing, alarm, and fault relays, etc.) is correctly connected
- That the batteries are connected correctly, and comply with all requirements described in “Connecting the batteries” on page 14
- That all fire alarm system configuration complies with the corresponding operating mode and local regulations.

Commissioning the control panel

Once all installation, connection, and configuration requirements have been checked as described above, the control panel can be powered up.

Normal start-up

After starting up the control panel, normal status (standby) is indicated as follows:

- The Supply LED is steady
- The Sounder Delay LED is steady (if a delay has been configured and enabled)
- The Fire Routing Delay LED is steady (if a delay has been configured and enabled)

If any other indicators are on, check your installation thoroughly before proceeding.

Fault start-up

In accordance with EN 54-2, the control panel has a special start-up sequence used after an internal fault has been detected by the control panel.

This is indicated as follows:

- The general Fault LED flashes quickly
- The System Fault LED flashes slowly

When this happens:

1. Enter the access level 2 password.
2. Press the Reset button to reset the control panel.

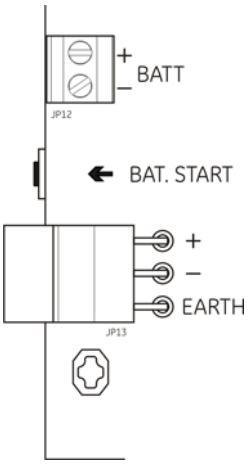
If the fault status persists after reset, the control panel will abort the start-up sequence and the System Fault LED will be steady.

When this happens, check all control panel connections and configuration, as described in “Before commissioning the control panel” on page 42.

Battery start-up

To power up the control panel from the batteries, press the battery start button on the control panel PCB (marked as BAT. START, see Figure 12 below). Keep the button pressed for approximately five seconds.

Figure 12: Battery start-up button



Functional tests

Create a short and open circuit in the zone to test fault reporting for each.

Activate a manual call point to test manual alarm reporting. The control panel should override any configured delays and activate alarm notification devices and fire routing (where applicable) immediately.

Activate a detector to test automatic alarm reporting. The control panel should initiate any configured delays and activate alarm notification devices and fire routing (where applicable) once the delay time has elapsed.

Using a multimeter, verify that the fault relay is activated when a fault is reported and that the alarm relay is activated when an alarm is reported.

Response times

Response times for standard events are as follows.

Event	Response time
Alarm	Less than 3 seconds
Zone fault	Less than 30 seconds
Sounder fault	Less than 30 seconds
Fire routing fault	Less than 30 seconds
Earth fault	Less than 100 seconds
attery charger fault	Less than 100 seconds
Battery lost fault	Less than 3 minutes
Mains fault	Less than 3 minutes
Low battery fault	Less than 100 seconds
Fuse/protection fault	Less than 3 minutes
System fault	Less than 100 seconds
Battery high resistance fault	Less than 4 hours

Chapter 4
Maintenance

Summary

This chapter includes information on fire alarm system maintenance and battery maintenance.

Content

Fire alarm system maintenance 46
- Daily maintenance 46
- Weekly maintenance 46
- Quarterly maintenance 46
- Annual maintenance 46
- Cleaning the control panel 46

Battery maintenance 47

Fire alarm system maintenance

Perform the following maintenance tasks to ensure that the fire alarm system works correctly and complies with all required European regulations.

Caution: Before performing any tests, ensure that fire routing (if configured) is disabled or that the fire brigade has been notified.

Daily maintenance

Check that the control panel is in standby. If it is not, investigate all system events and/or fix any reported faults.

Weekly maintenance

Activate an alarm from at least one detector or manual call point in your fire alarm system and verify that the control panel responds correctly to the alarm. If it does not, investigate all system events and/or fix any reported faults.

Caution: Perform this test from a different detector or manual call point each time.

Quarterly maintenance

Test at least one device per zone and verify that the control panel responds to all fault and alarm events. The control panel power supply and battery voltage should be checked. Batteries with low voltage must be replaced (for more information see “Battery maintenance” on page 47).

Annual maintenance

Test all system devices and verify that the control panel responds to all fault and alarm events. All electrical connections must be visually inspected to make sure that they are securely fastened, that they have not been damaged, and that they are appropriately protected.

Cleaning the control panel

Keep the outside and inside of the control panel clean. Carry out periodic cleaning using a damp cloth for the outside. Do not use products containing solvents to clean the control panel. Do not clean the inside of the cabinet with liquid products.

Battery maintenance

Compatible batteries

The control panel requires two 12V, 7.2 or 12 Ah rechargeable sealed lead-acid batteries. Compatible batteries for this product are shown in the table below.

Table 10: Compatible batteries

Model	Battery type	Recommended batteries
Two- and four-zone control panels	12V, 7.2 Ah	GE BS127N Fiamm FG20721/2 Yuasa NP7-12
Eight-zone control panel	12V, 7.2 Ah or 12V, 12 Ah	GE BS127N (7.2 Ah) GE BS130N (12 Ah) Fiamm FG20721/2 (7.2 Ah) Fiamm FG21201/2 (12 Ah) Yuasa NP7-12 (7 Ah) Yuasa NP12-12 (12 Ah)

Low battery indication

Battery supply and battery fuse faults are indicated by a flashing Supply Fault LED. If this LED is flashing, check the following:

- That the battery cables are in good condition
- That the battery cables are connected securely and correctly at the battery and at the control panel PCB
- That the battery voltage is greater than 19.6 V

If the cables are in good condition and all connections are correct, then the batteries should be replaced immediately.

Replacing batteries

Batteries must be replaced periodically as recommended by the battery manufacturer. The useful life of the battery is approximately four years. Avoid the total discharge of the batteries. Always use the recommended replacement batteries.

To replace the batteries:

1. Disconnect and remove the existing batteries from the cabinet.
2. Install and connect the replacement batteries using the bridge provided. Observe correct polarity.
3. Dispose of the batteries as required by local or regional regulations.

Chapter 5
Technical specifications

Summary

This chapter includes technical specifications for your fire alarm control panel.

Content

Zone circuit specifications 50
Input and output specifications 51
Power supply specifications 52
Mechanical and environmental specifications 53

Zone circuit specifications

General	
Zone circuit output voltage	
Nominal	22 VDC
Maximum	24 VDC
Minimum	18 VDC
Maximum current consumption per zone circuit	65 mA
Default zone circuit configuration	
EN 54	Passive end-of-line
NEN 2535	Passive end-of-line
NBN S21-100	Passive end-of-line
BS 5839-1	Active end-of-line
Zone circuit termination	
EN 54	4.7 kΩ end-of-line resistor
NEN 2535	4.7 kΩ end-of-line resistor
NBN S21-100	4.7 kΩ end-of-line resistor
BS 5839-1	Active end-of-line module
Number of detectors per zone circuit	Max. 20
Number of manual call points per zone circuit	Max. 32

Mixed zones	
Maximum resistance per zone circuit	40 Ω
Maximum capacitance per zone circuit	500 nF
Nominal impedance	
Detector	160 Ω to 470 Ω ±5%
Manual call point	100 Ω ±5%
Detector alarm reference range	
Zone voltage	6.5 V to 14 V
Zone impedance	145 Ω to 470 Ω
Manual call point alarm reference range	
Zone voltage	3 V to 6.5 V
Zone impedance	75 Ω to 144 Ω
Short circuit reference range	
Zone voltage	< 3 V
Zone impedance	< 55 Ω
Open circuit reference range	
Zone impedance	> 8 kΩ
Zone device current consumption	≤ 2.6 mA

Automatic and manual zones	
Maximum resistance per zone circuit	55 Ω
Maximum capacitance per zone circuit	500 nF
Nominal impedance	100 Ω to 470 Ω ±5%
Detector alarm reference range	
Zone voltage	3 V to 14 V
Zone impedance	75 Ω to 470 Ω

Automatic and manual zones	
Short circuit reference range	
Zone voltage	< 3 V
Zone impedance	< 55 Ω
Open circuit reference range	
Zone impedance	> 8 kΩ
Zone device current consumption	≤ 2.6 mA

Input and output specifications

Inputs	
Cable resistance	
Activation input value	≤ 100 Ω
Deactivation input value	Open circuit
Outputs	
Output termination	15 kΩ end-of-line resistor
Sounder outputs	
Supervised	For open and short circuit
Number of outputs	4 (BS 5839-1, EN 54-2 Evacuation) 3 (EN 54-2, EN 54-2 Scandinavia) 2 (NEN 2535, NBN S21-100)
Maximum current per output (2-,4-zone)	250 mA
Maximum current per output (8-zone)	500 mA
Maximum voltage in standby	–15 VDC
Maximum voltage in alarm	+28 VDC
Fire routing outputs	
Supervised	For open and short circuit
Number of outputs (EN 54)	1
Number of outputs (NEN 2535)	2
Maximum current per output (2-,4-zone)	250 mA
Maximum current per output (8-zone)	500 mA
Maximum voltage in standby	–15 VDC
Maximum voltage in alarm	+28 VDC
Alarm relay output	
Number of potential-free outputs	1
Maximum commutation current	2 A at 30 VDC
Fault relay output	
Number of potential-free outputs	1
Maximum commutation current	2 A at 30 VDC
Default state	Energized (fail to safe)
Auxiliary 24 VDC output	
Nominal output voltage	24 VDC
Maximum output voltage	28 VDC
Minimum output voltage	21 VDC
Maximum current	250 mA

Power supply specifications

Mains supply	
Operating voltage	110 VAC / 60 Hz or 240 VAC / 50 Hz
Rated current (two- and four-zone control panels)	
110 VAC	2 A
240 VAC	2 A
Rated current (eight-zone control panels)	
110 VAC	3.15 A
240 VAC	1.5 A
Voltage tolerance	+10% / –15%
Mains fuse	
110 VAC	T 3.15A 250V
240 VAC	T 2A 250V
24 VDC power supply unit	
Two- and four-zone control panels	
DC voltage	24 V
Rated current	2 A
Current range	0 to 2 A
Rated power	50 W
Voltage tolerance	±2%
Eight-zone control panel	
DC voltage	24 V
Rated current	4 A
Current range	0 to 4 A
Rated power	100 W
Voltage tolerance	±2%
Batteries and battery charger	
Batteries	
Two- and four-zone control panels	2 x 7.2 Ah
Eight-zone control panel	2 x 7.2 Ah or 2 x 12 Ah
Battery type	Sealed lead-acid
Battery charger voltage	27.3 V at 20ºC –36mV/ºC
Battery charger current	
Two- and four-zone control panels	Max. 0.5 A
Eight-zone control panel	Max. 0.7 A

Mechanical and environmental specifications

Mechanical	
Cabinet dimensions (no cover)	
Two- and four-zone control panels	300 × 97 × 402 mm
Eight-zone control panel	421 × 100 × 447 mm
Weight without batteries	
Two- and four-zone control panels	2.8 kg
Eight-zone control panel	3.9 kg
Number of cable knockouts	
Two- and four-zone control panels	14 x Ø 20 mm at top of cabinet 2 x Ø 20 mm at bottom of cabinet 12 x Ø 20 mm at rear of cabinet
Eight-zone control panel	20 x Ø 20 mm at top of cabinet 2 x Ø 20 mm at bottom of cabinet 26 x Ø 20 mm at rear of cabinet
IP rating	IP30

Environmental	
Operating temperature Storage temperature	–5 to +40°C –5 to +70°C
Relative humidity	10 to 95% (noncondensing)
Type class conditions	3K5 of IEC 60721-3-3

Note: For detailed cabinet drawings and dimensions, see “Cabinet drawings and dimensions” on page 54.

Cabinet drawings and dimensions

Figure 13: Two- and four-zone cabinet with cover

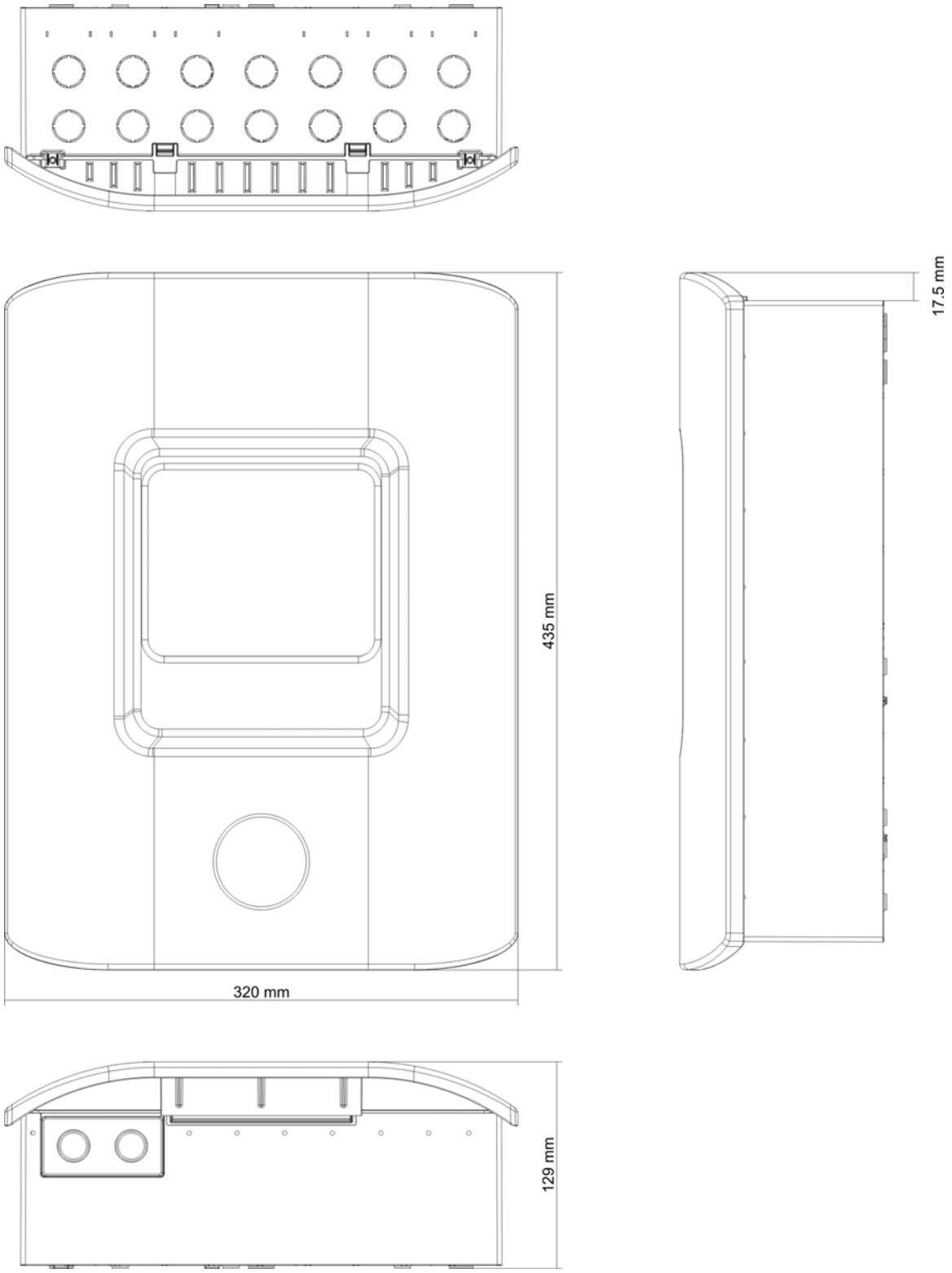


Figure 14: Two- and four-zone cabinet without cover

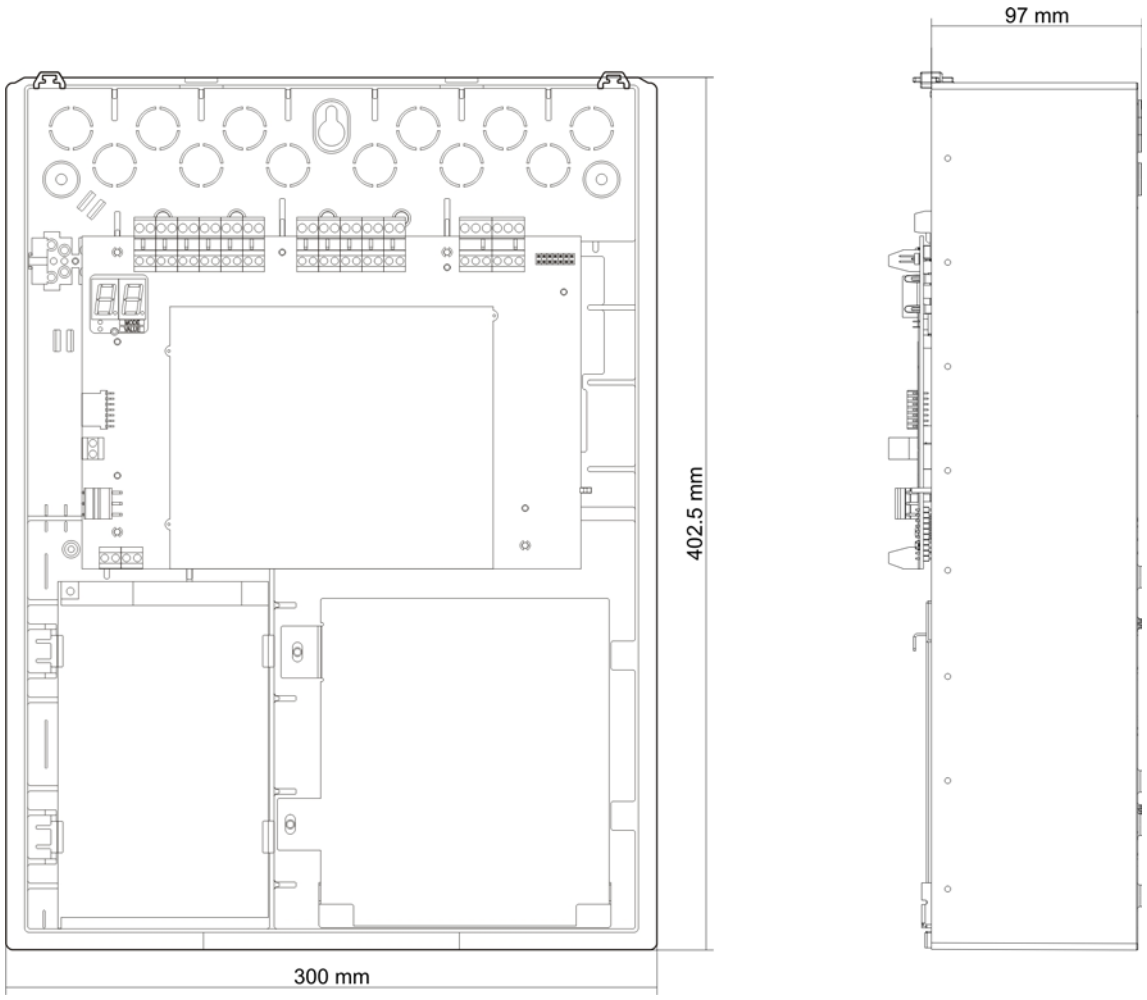


Figure 15: Eight-zone cabinet with cover

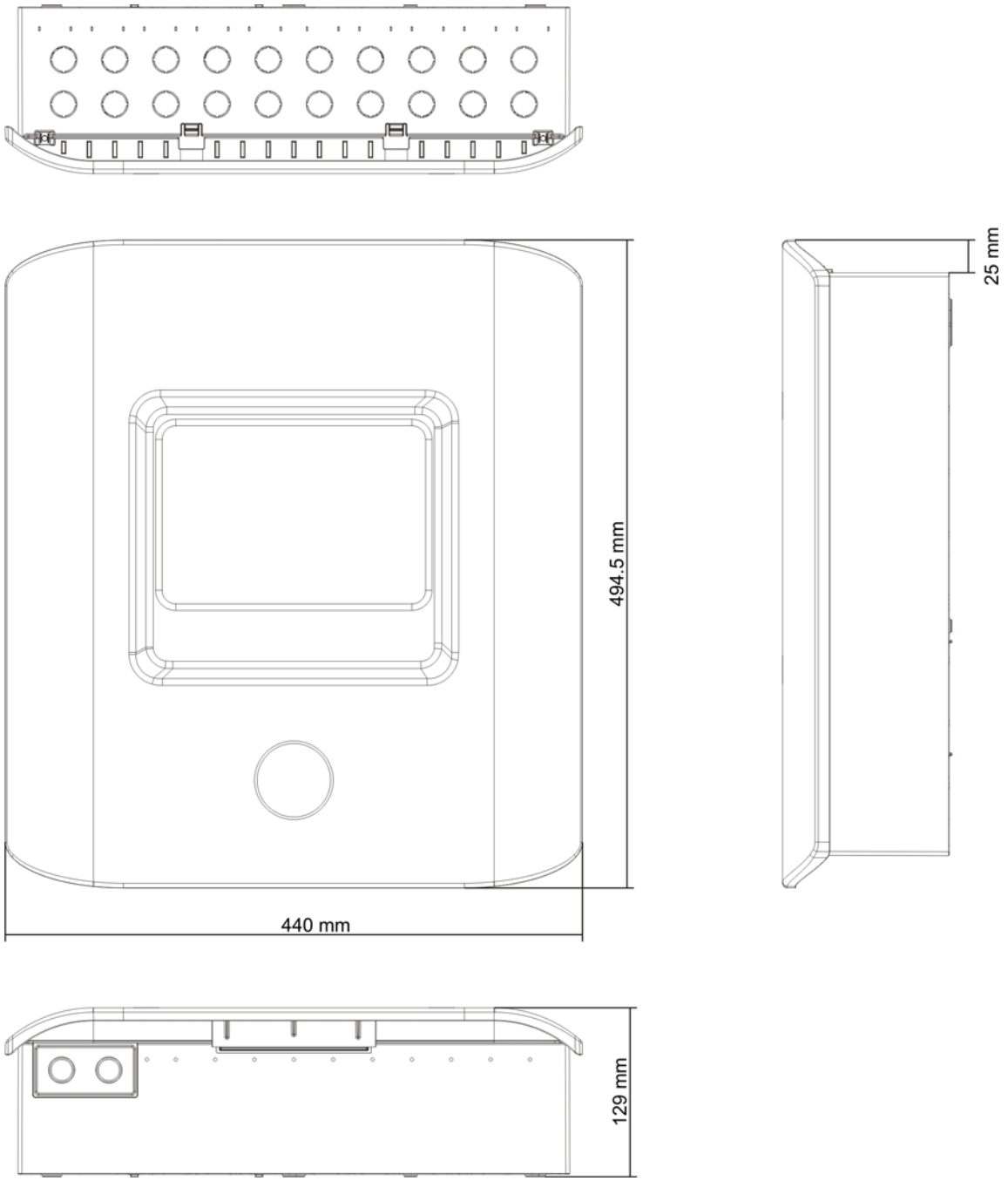
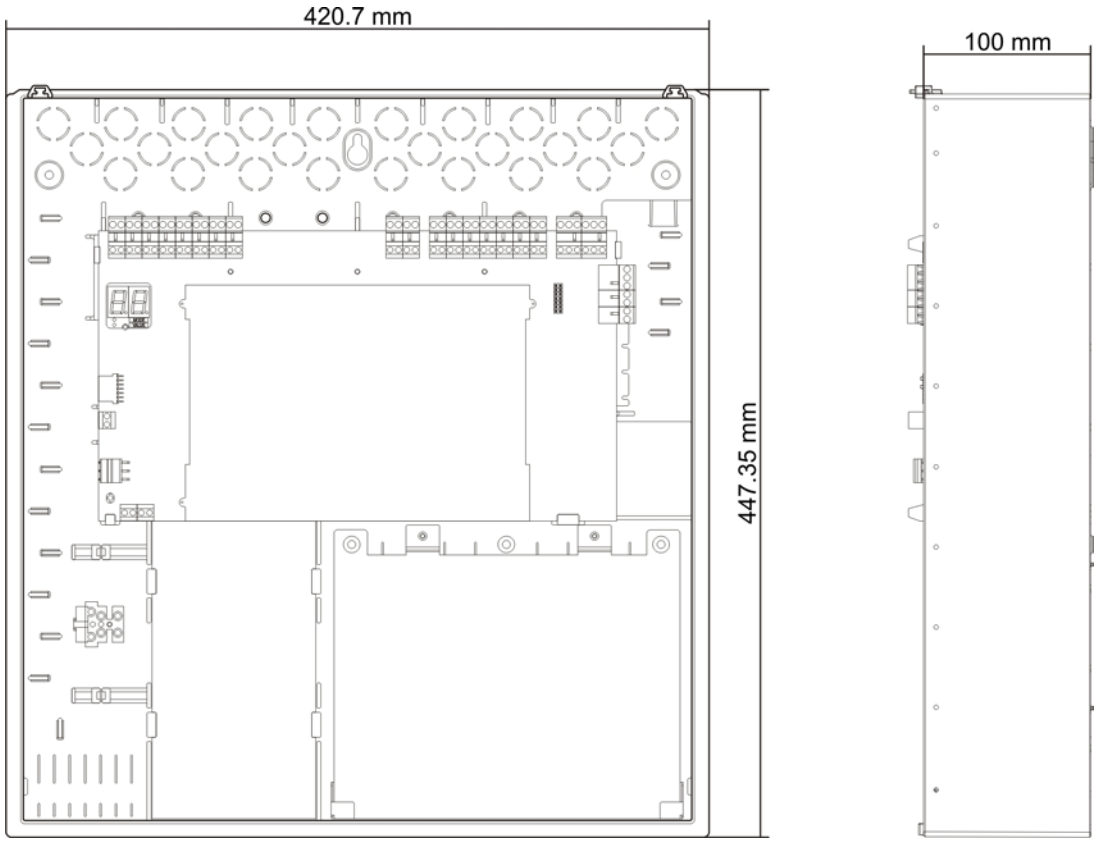


Figure 16: Eight-zone cabinet without cover



Appendix A
Configuration presets

Summary

This appendix includes detailed information on operating mode and expansion module configuration presets.

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Operating mode presets

EN 54-2

Configuration presets for EN 54-2 are as follows.

Two-zone control panels

Code	Zone EOL	Sounder outputs	Zone type
01	Passive	2	Mixed
02	Passive, CleanMe enabled	2	Mixed

Note: CleanMe is not currently available for Kilsen detectors.

Four- and eight-zone control panels

Code	Zone EOL	Sounder outputs	Fire routing outputs	Zone type
01	Passive	3	1	Mixed
02	Passive, CleanMe enabled	3	1	Mixed

Additional configuration characteristics are shown below.

Default sounder delay	0
Default fire routing delay	0
Default zone delay	0n
Start/Restart sounders	Start sounders only if there is a fire alarm

Inputs and outputs are as follows.

INPUT1	Remote reset
INPUT2	Delays off
OUT1	Sounder circuit
OUT2	Sounder circuit
OUT3	Sounder circuit
OUT4	Fire routing

Note: Two-zone control panels have only two outputs (OUT1 and OUT2).

EN 54-2 Evacuation

Configuration presets for EN 54-2 Evacuation are as follows.

Two-zone control panels

Code	Zone EOL	Sounder outputs	Zone type
05	Passive	2	Mixed
06	Passive, CleanMe enabled	2	Mixed

Note: CleanMe is not currently available for Kilsen detectors.

Four- and eight-zone control panels

Code	Zone EOL	Sounder outputs	Zone type
05	Passive	4	Mixed
06	Passive, CleanMe enabled	4	Mixed

Additional configuration characteristics are shown below.

Default sounder delay	0
Default zone delay	0n
Start/Restart sounders	Start sounders or restart stopped sounders at access level 2 with or without a fire alarm event

Inputs and outputs are as follows.

INPUT1	Remote reset
INPUT2	Delays off
OUT1	Sounder circuit
OUT2	Sounder circuit
OUT3	Sounder circuit
OUT4	Sounder circuit

Note: Two-zone control panels have only two outputs (OUT1 and OUT2).

EN 54-2 Scandinavia

Configuration presets for EN 54-2 Scandinavia are as follows.

Two-zone control panels

Code	Zone EOL	Sounder outputs	Zone type
07	Passive	2	Mixed
08	Passive, CleanMe enabled	2	Mixed

Note: Note: CleanMe is not currently available for Kilsen detectors.

Four- and eight-zone control panels

Code	Zone EOL	Sounder outputs	Fire routing outputs	Zone type
07	Passive	3	1	Mixed
08	Passive, CleanMe enabled	3	1	Mixed

Additional configuration characteristics are shown below.

Default sounder delay	0
Default fire routing delay	0
Default extended fire routing delay	0
Default zone delay	0n
Start/Restart sounders	Start sounders or restart stopped sounders at access level 2 with or without a fire alarm event

Inputs and outputs are as follows.

INPUT1	Fire routing delay / extended fire routing delay
INPUT2	Delays off
OUT1	Sounder circuit
OUT2	Sounder circuit
OUT3	Sounder circuit
OUT4	Fire routing

Note: INPUT1 is not used on two-zone control panels. Two-zone control panels have only two outputs (OUT1 and OUT2).

BS 5839-1

Configuration presets for BS 5839-1 are as follows.

Two-zone control panels

Code	Zone EOL	Sounder outputs	Zone type
11	Active	2 (first phase evacuation mode)	Mixed
12	Active, CleanMe enabled	2 (first phase evacuation mode)	Mixed
13	Active	2 (second phase evacuation mode)	Mixed
14	Active, CleanMe enabled	2 (second phase evacuation mode)	Mixed

Note: CleanMe is not currently available for Kilsen detectors.

Four- and eight-zone control panels

Code	Zone EOL	Sounder outputs	Zone type
11	Active	4 (first phase evacuation mode)	Mixed
12	Active, CleanMe enabled	4 (first phase evacuation mode)	Mixed
13	Active	4 (second phase evacuation mode)	Mixed
14	Active, CleanMe enabled	4 (second phase evacuation mode)	Mixed

Additional configuration characteristics are shown below.

Default sounder delay	0
Default zone delay	0n
Start/Restart sounders	Start sounders or restart stopped sounders at access level 2 with or without a fire alarm event

Inputs and outputs are as follows.

INPUT1	Class change
INPUT2	Delays off
OUT1	Sounder circuit
OUT2	Sounder circuit
OUT3	Sounder circuit
OUT4	Sounder circuit

Note: Two-zone control panels have only two outputs (OUT1 and OUT2).

NBN S21-100

Configuration presets for NBN S21-100 are as follows.

Four- and eight-zone control panels

Code	Zone EOL	Warning sounder outputs	Evacuation sounder outputs	Zone type
21	Passive	2	2	Automatic
22	Passive, CleanMe enabled	2	2	Automatic

Note: Alarm relay follows evacuation sounders. CleanMe is not currently available for Kilsen detectors.

Additional configuration characteristics are shown below.

Default sounder delay	1 minute
Default zone delay	0n
Start/Restart sounders	Start sounders or restart stopped sounders at access level 2 with or without a fire alarm event

Inputs and outputs are as follows.

INPUT1	Remote reset
INPUT2	Delays off
OUT1	Evacuation sounders
OUT2	Evacuation sounders
OUT3	Warning sounders
OUT4	Warning sounders

NEN 2535

Configuration presets for NEN 2535 are as follows.

Four- and eight-zone control panels

Code	Zone EOL	Sounder outputs	Fire routing outputs	Zone type
31	Passive	2	2	Odd zones: Automatic Even zones: Manual
32	Passive, CleanMe enabled	2	2	Odd zones: Automatic Even zones: Manual

Note: CleanMe is not currently available for Kilsen detectors.

Additional configuration characteristics are shown below.

Default fire routing delay	1 minute
Default extended fire routing delay	3 minutes
Default zone delay	0n
Start/Restart sounders	Start sounders only if there is a fire alarm

Inputs and outputs are as follows.

INPUT1	Fire routing inhibit delay
INPUT2	Delays off
OUT1	Sounder circuit
OUT2	Sounder circuit
OUT3	Fire routing (automatic)
OUT4	Fire routing (manual)

Expansion module presets

The following tables include the display settings for relay and supervised output expansion module configuration presets.

Expansion module zone configuration

Relay expansion module			
Display	**Zone**	**Relay**	**Delay**
01	1	1	Yes
	2	2	Yes
	3	3	Yes
	4	4	Yes
02	5	1	Yes
	6	2	Yes
	7	3	Yes
	8	4	Yes
05	1	1	Yes
		2	Yes
	2	3	Yes
		4	Yes
06	3	1	Yes
		2	Yes
	4	3	Yes
		4	Yes
07	5	1	Yes
		2	Yes
	6	3	Yes
		4	Yes
08	7	1	Yes
		2	Yes
	8	3	Yes
		4	Yes
13	1 or 2	1	Yes
	3 or 4	2	Yes
	5 or 6	3	Yes
	7 or 8	4	Yes

Supervised output expansion module			
Display	**Zone**	**Output**	**Delay**
51	1	1	Yes
	2	2	Yes
	3	3	Yes
	4	4	Yes
52	5	1	Yes
	6	2	Yes
	7	3	Yes
	8	4	Yes
55	1	1	Yes
		2	Yes
	2	3	Yes
		4	Yes
56	3	1	Yes
		2	Yes
	4	3	Yes
		4	Yes
57	5	1	Yes
		2	Yes
	6	3	Yes
		4	Yes
58	7	1	Yes
		2	Yes
	8	3	Yes
		4	Yes
63	1 or 2	1	Yes
	3 or 4	2	Yes
	5 or 6	3	Yes
	7 or 8	4	Yes

Relay expansion module			
Display	**Zone**	**Relay**	**Delay**
15	1 and 2	1	Yes
	3 and 4	2	Yes
	5 and 6	3	Yes
	7 and 8	4	Yes
17	1, 2, 3, or 4	1	Yes
	5, 6, 7, or 8	2	Yes
	Not used	3	N/A
	Not used	4	N/A
18	1 and 2	1	Yes
		2	Yes
	3 and 4	3	Yes
		4	Yes
19	5 and 6	1	Yes
		2	Yes
	7 and 8	3	Yes
		4	Yes

Supervised output expansion module			
Display	**Zone**	**Output**	**Delay**
65	1 and 2	1	Yes
	3 and 4	2	Yes
	5 and 6	3	Yes
	7 and 8	4	Yes
67	1, 2, 3, or 4	1	Yes
	5, 6, 7, or 8	2	Yes
	Not used	3	N/A
	Not used	4	N/A
68	1 and 2	1	Yes
		2	Yes
	3 and 4	3	Yes
		4	Yes
69	5 and 6	1	Yes
		2	Yes
	7 and 8	3	Yes
		4	Yes

Expansion module event configuration

Relay expansion module				Supervised output expansion module			
Display	**Events**	**Relay**	**Delay**	**Display**	**Events**	**Output**	**Delay**
24	Alarm	1-4	No	74	Alarm	1-4	No
25	Fault	1-4	No	75	Fault	1-4	No
26	Alarm	1-2	No	76	Alarm	1-2	No
	Fault	3-4	No		Fault	3-4	No
27	Alarm	1	No	77	Alarm	1	No
	Fault	2	No		Fault	2	No
	Buzzer on	3	No		Buzzer on	3	No
	Reset	4	No		Reset	4	No
28	Alarm	1-4	No	78	Alarm	1-4	No
29	Fault [1]	1-4	No	79	Fault [1]	1-4	No
30	Alarm	1-2	No	80	Alarm	1-2	No
	Fault [1]	3-4	No		Fault [1]	3-4	No
31	Alarm	1	No	81	Alarm	1	No
	Fault [1]	2	No		Fault [1]	2	No
	Buzzer on	3	No		Buzzer on	3	No
	Reset	4	No		Reset	4	No

[1] Positive security mode (output is on when there is no fault)

Expansion module sounder circuit configuration

Display	Events	Output	Delay
90 [1]	Sounder 1 circuit	1	No
		2	No
	Sounder 2 circuit	3	No
		4	No
91	Sounder 1 circuit	1	No
		2	No
		3	No
		4	No
92 [1]	Sounder 2 circuit	1	No
		2	No
		3	No
		4	No

[1] NBN S21-100 only

Appendix B
Product compliance

European standards for fire control and indicating equipment

These control panels have been designed in accordance with European EN 54-2, EN 54-4, BS 5839-1, NBN S21-100, and NEN 2535 standards.

In addition, all models comply with the following EN 54-2 optional requirements.

Option	Description
7.8	Output to fire alarm devices
7.9.1	Output to fire alarm routing equipment [1]
7.11	Delays to outputs
7.13	Alarm counter [2]
8.4	Total loss of the power supply
10	Test condition
11	Standardised input/output interface

[1] Excluding two-zone models.
[2] Dutch models only.

European standards for electrical safety and electromagnetic compatibility

These control panels have been designed in accordance with the following European standards for electrical safety and electromagnetic compatibility:

- EN 60950-1
- EN 50130-4
- EN 61000-6-3
- EN 61000-3-2
- EN 61000-3-3